

# **STATEMENT OF QUALIFICATIONS**

MULTIPLE ON-CALL CONSULTANT ROSTERS

## **ON-CALL VALUE ENGINEERING AND CONSTRUCTABILITY REVIEW CONSULTANTS**

PROJECT NO. 2021-804



STATE OF WASHINGTON – DEPARTMENT OF ENTERPRISE SERVICES

FACILITY PROFESSIONAL SERVICES

OLYMPIA, WASHINGTON

MARCH 24, 2021

**RØEN**  
ASSOCIATES

LOGAN BUILDING  
500 UNION STREET / SUITE 927  
SEATTLE WA 98101

ROEN  
ASSOCIATES

T. 206-343-1003

March 23, 2021

Mr. Paul Fiedler, Project Manager  
State of Washington, Department of Enterprise Services  
Facility Professional Services

RE: Request for Qualifications, Multiple On-Call Consultant Rosters  
Value Engineering and Constructability Review Consultants  
Project No. 2021-804

Dear Mr. Fiedler

Roen Associates is pleased to present our qualifications for Value Engineering and Constructability Review services for the Department of Enterprise Services at the State of Washington. We are feeling the first rumblings of a post pandemic construction boom and we are excited about being among the first to be a part of those initial projects.

We have been performing these services for the State of Washington, DES since 1988 when we provided value engineering services on Mod D at the Olympic Corrections Center. That was our first year of operation and we also provided value engineering and estimating services on other Washington facilities including WSR Monroe, Washington State University, and the University of Washington Communication Building.

The State of Washington has been an important client for Roen Associates since that time including several major recent projects in 2020. We provided two budgeting reports for statewide projects for the Dept. of Corrections, estimating, constructability review and value engineering efforts for Western Washington University, (2 projects), major work at Eastern Washington University, and numerous community college projects on the east and west sides of the State.

We are looking forward to another several years of working with the Department of Enterprise Services on projects made successful by close attention to budget from inception to occupancy. Thank you for your attention and we hope to hear from you soon.

Sincerely,  
ROEN ASSOCIATES



Roger Roen, AIA  
President



**STATE OF WASHINGTON**  
**DEPARTMENT OF ENTERPRISE SERVICES**

*1500 Jefferson St. SE, Olympia, WA 98501  
PO Box 41476, Olympia, WA 98504-1476*

**Designated Point of Contact for Statement of Qualifications**

Point of Contact Name and Title			Roger Roen, President				
Firm Name			Roen Associates, Inc.				
Address			121 S. Wall Street				
City		Spokane	State		WA	Zip	99201
Telephone		509-838-8688		Email		rogerr@roenassociates.com	

**Addresses of multiple office locations of firm (if applicable)**

Address		Logan Building, 500 Union St., Suite 927	
City		Seattle	Phone 206-343-1003
Address			
City		Phone	
Address			
City		Phone	
Address			
City		Phone	

**Diverse Business Certifications (if applicable)**

***Certification issued by the Washington State Office of Minority and Women's Business Enterprise (OMWBE)***

- ☐ Minority Business Enterprise (MBE)
- ☐ Woman Business Enterprise (WBE)
- ☐ Minority Women Business Enterprise (MWBE)

***Certification issued through the Washington State Department of Veteran's Affairs***

- ☐ Veteran Owned Business

***Certification issued through Washington Electronic Business Solution (WEBS)***

- ☒ Small Business Enterprise (SBE)

1. SOLICITATION NUMBER (If any)

2021-804

## PART II – GENERAL QUALIFICATIONS

*(If a firm has branch offices, complete for each specific branch office seeking work.)*


2a. FIRM (OR BRANCH OFFICE) NAME Roen Associates, Inc.			3. YEAR ESTABLISHED 2009		4. DUNS NUMBER 612485177	
2b. STREET 121 S. Wall			5. OWNERSHIP			
2c. CITY Spokane		2d. STATE WA	2e. ZIP CODE 99201			
6a. POINT OF CONTACT NAME AND TITLE Roger Roen – Owner/Director			a. TYPE Corporation			
			b. SMALL BUSINESS STATUS			
			7. NAME OF FIRM (If block 2a is a branch office)			
6b. TELEPHONE NUMBER (509) 838-8688		6c. E-MAIL ADDRESS rogerr@roenassociates.com				
8a. FORMER FIRM NAME(S) (If any)			8b. YR. ESTABLISHED		8c. DUNS NUMBER	
Roen Associates			1988		612485177	

9. EMPLOYEES BY DISCIPLINE				10. PROFILE OF FIRM'S EXPERIENCE AND ANNUAL AVERAGE REVENUE FOR LAST 5 YEARS		
a. Function Code	b. Discipline	c. No. of Employees		a. Profile Code	b. Experience	c. Revenue Index Number <i>(see below)</i>
		(1) FIRM	(2) BRANCH			
08	Architect	1	1	A06	Airports, Terminals and Hangars	1
48	Civil Engineer	0	0	C15	Construction Management	2
18	Cost Engineer/Estimator	4	1	C18	Cost Estimating, Cost Engineering	4
16	Construction Manager	1	1	E02	Educational Facilities	5
02	Office Manager	1	1	F02	Field Houses, Gyms, Stadiums	3
	Other Employee	0	0	F03	Fire Protection	2
				H09	Hospitals and Medical Facilities	2
				L04	Libraries, Museums	2
				S12	Swimming Pools	2
				V01	Value Analysis, Life Cycle Cost Analysis	4
	Other Employees					
<b>Total</b>		7	4			

11. ANNUAL AVERAGE PROFESSIONAL SERVICES REVENUES OF FIRM FOR LAST 3 YEARS (Insert revenue index number shown at right)		PROFESSIONAL SERVICES REVENUE INDEX NUMBER	
a. Federal Work	2	1. Less than \$100,000	6. \$2 million to less than \$5 million
b. Non-Federal Work	5	2. \$100,000 to less than \$250,000	7. \$5 million to less than \$10 million
c. Total Work	5	3. \$250,000 to less than \$500,000	8. \$10 million to less than \$25 million
		4. \$500,000 to less than \$1 million	9. \$25 million to less than \$50 million
		5. \$1 million to less than \$2 million	10. \$50 million or greater

## 12. AUTHORIZED REPRESENTATIVE

The foregoing is a statement of facts.

a. SIGNATURE 		b. DATE March 19, 2021
c. NAME AND TITLE Roger Roen, President		


1. SOLICITATION NUMBER (if any)

***(If a firm has branch offices, complete for each specific branch office seeking work.)***

[illegible]

11. ANNUAL AVERAGE PROFESSIONAL SERVICES REVENUES OF FIRM FOR LAST 3 YEARS <i>(Insert revenue index number shown at right)</i>		PROFESSIONAL SERVICES REVENUE INDEX NUMBER	
a. Federal Work	1	1. Less than \$100,000	6. \$2 million to less than \$5 million
b. Non-Federal Work	4	2. \$100,00 to less than \$250,000	7. \$5 million to less than \$10 million
c. Total Work	4	3. \$250,000 to less than \$500,000	8. \$10 million to less than \$25 million
		4. \$500,000 to less than \$1 million	9. \$25 million to less than \$50 million
		5. \$1 million to less than \$2 million	10. \$50 million or greater

The foregoing is a statement of facts.

a. SIGNATURE 	b. DATE 03-22-21
b. NAME AND TITLE Tristan Burton	

## 1. SOLICITATION NUMBER (if any)

***(If a firm has branch offices, complete for each specific branch office seeking work.)***

9. EMPLOYEES BY DISCIPLINE				10. PROFILE OF FIRM'S EXPERIENCE AND ANNUAL AVERAGE REVENUE FOR LAST 5 YEARS		
a. Function Code	b. Discipline	c. No. of Employees		a. Profile Code	b. Experience	c. Revenue Index Number ( <i>see below</i> )
		(1) FIRM	(2) BRANCH			
<b>04</b>	<b>Mechanical Engineer</b>	<b>1</b>		C05	Child Care	1
				C06	Churches	1
				C10	Commercial Building-Low	1
				D07	Dining Halls: Restaurants	1
				E02	Educational Facilities	1
				G01	Vehicle Maint: Garages	1
				H04	HVAC	2
				P07	Plumbing	2
				O01	Office Buildings	1
	Other Employees					
	<b>Total</b>					

11. ANNUAL AVERAGE PROFESSIONAL SERVICES REVENUES OF FIRM FOR LAST 3 YEARS <i>(Insert revenue index number shown at right)</i>		PROFESSIONAL SERVICES REVENUE INDEX NUMBER	
a. Federal Work	1	1. Less than \$100,000	6. \$2 million to less than \$5 million
b. Non-Federal Work	3	2. \$100,00 to less than \$250,000	7. \$5 million to less than \$10 million
		3. \$250,000 to less than \$500,000	8. \$10 million to less than \$25 million
		4. \$500,000 to less than \$1 million	9. \$25 million to less than \$50 million
c. Total Work	3	5. \$1 million to less than \$2 million	10. \$50 million or greater

The foregoing is a statement of facts.

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**ARCHITECT-ENGINEER QUALIFICATIONS**

1. SOLICITATION NUMBER (If any)

**PART II - GENERAL QUALIFICATIONS**

(If a firm has branch offices, complete for each specific branch office seeking work.)

2a. FIRM (OR BRANCH OFFICE) NAME W. A. Botting Consulting, LLC			3. YEAR ESTABLISHED 2016	4. DUNS NUMBER
2b. STREET 20334 170 <sup>th</sup> Ave NE			5. OWNERSHIP	
2c. CITY Woodinville	2d. STATE	2e. ZIP CODE	a. TYPE LLC	
6a. POINT OF CONTACT NAME AND TITLE Wade A. Botting, President			b. SMALL BUSINESS STATUS	
6b. TELEPHONE NUMBER (425) 408-1200			7. NAME OF FIRM (If block 2a. is a branch office)	
6c. E-MAIL ADDRESS wadebotting@live.com				
8a. FORMER FIRM NAME(S) (If any)			8b. YR ESTABLISHED	8c. DUNS NUMBER

**9. EMPLOYEES BY DISCIPLINE**

a. Function Code	b. Discipline	c. No. of Employees		a. Profile Code	b. Experience	c. Revenue Index Number (see below)
		(1) FIRM	(2) BRANCH			
18	Cost Engineer/Estimator	1		A11	Auditoriums & Theaters	1
	Mechanical Systems Analysis			B01	Barracks; Dormitories	1
	Plumbing Systems Analysis			C18	Cost Estimating	2
	Constructability Review			E02	Educational Facilities	1
	Life Cycle Analysis			H04	Heating; Ventilating; Air Conditioning	1
	Mechanical Systems Design			H09	Hospitals & Medical Facilities	1
	Commissioning			H11	Housing	1
	Construction Management			V01	Value Engineering	2
				J01	Judicial and Courtroom Facilities	1
				L01	Laboratories; Medical Research	1
				P07	Plumbing & Piping Design	1
				P08	Prisons and Correctional Facilities	1
				R06	Rehabilitation (Buildings; Structures; Facilities)	1
				R10	Risk Analysis	1
	Other Employees					
Total		1				

**11. ANNUAL AVERAGE PROFESSIONAL SERVICES REVENUES OF FIRM FOR LAST 3 YEARS**

(Insert revenue index number shown at right)

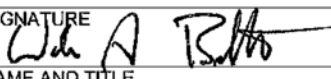
a. Federal Work	2
b. Non-Federal Work	2
c. Total Work	3

**PROFESSIONAL SERVICES REVENUE INDEX NUMBER**

- |   |   |
|---|---|
| 1. Less than \$100,000                  | 6. \$2 million to less than \$5 million   |
| 2. \$100,00 to less than \$250,000      | 7. \$5 million to less than \$10 million  |
| 3. \$250,000 to less than \$500,000     | 8. \$10 million to less than \$25 million |
| 4. \$500,000 to less than \$1 million   | 9. \$25 million to less than \$50 million |
| 5. \$1 million to less than \$2 million | 10. \$50 million or greater               |

**12. AUTHORIZED REPRESENTATIVE**

The foregoing is a statement of facts.

a. SIGNATURE 	b. DATE March 22, 2021
c. NAME AND TITLE Wade A. Botting, President	



1. SOLICITATION NUMBER *(if any)*

*(If a firm has branch offices, complete for each specific branch office seeking work.)*

11. ANNUAL AVERAGE PROFESSIONAL SERVICES REVENUES OF FIRM FOR LAST 3 YEARS <i>(Insert revenue index number shown at right)</i>		PROFESSIONAL SERVICES REVENUE INDEX NUMBER	
a. Federal Work	0	1. Less than \$100,000	6. \$2 million to less than \$5 million
b. Non-Federal Work	4	2. \$100,00 to less than \$250,000	7. \$5 million to less than \$10 million
		3. \$250,000 to less than \$500,000	8. \$10 million to less than \$25 million
		4. \$500,000 to less than \$1 million	9. \$25 million to less than \$50 million
c. Total Work	4	5. \$1 million to less than \$2 million	10. \$50 million or greater

The foregoing is a statement of facts.

AUTHORIZED FOR LOCAL REPRODUCTION  
MANDATORY USE DATE OF FORM 5/1/2004



1. SOLICITATION NUMBER *(if any)*

*(If a firm has branch offices, complete for each specific branch office seeking work.)*

9. EMPLOYEES BY DISCIPLINE				10. PROFILE OF FIRM'S EXPERIENCE AND ANNUAL AVERAGE REVENUE FOR LAST 5 YEARS		
a. Function Code	b. Discipline	c. No. of Employees		a. Profile Code	b. Experience	c. Revenue Index Number <i>(see below)</i>
		(1) FIRM	(2) BRANCH			
03	Engineer	1		E03	Electrical Studies and Design	1
				C18	Cost Estimating	1
	Other Employees					
	Total	1				

11. ANNUAL AVERAGE PROFESSIONAL SERVICES REVENUES OF FIRM FOR LAST 3 YEARS <i>(Insert revenue index number shown at right)</i>		PROFESSIONAL SERVICES REVENUE INDEX NUMBER	
a. Federal Work		1. Less than \$100,000	6. \$2 million to less than \$5 million
b. Non-Federal Work		2. \$100,00 to less than \$250,000	7. \$5 million to less than \$10 million
		3. \$250,000 to less than \$500,000	8. \$10 million to less than \$25 million
		4. \$500,000 to less than \$1 million	9. \$25 million to less than \$50 million
c. Total Work		5. \$1 million to less than \$2 million	10. \$50 million or greater

The foregoing is a statement of facts.

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## **VALUE AND CONSTRUCTABILITY REVIEW CONSULTANTS**

### **INTRODUCTION**

Seventy years ago, a set of design documents for a new elementary school could be completed on 11 sheets of 24" x 36" drawings and a specification book that was less than ¾" thick. Those days are gone as buildings have become increasingly complex, standards are more far reaching, and legal issues more common. For a typical owner, risk has become a much more serious issue with far reaching implications for State Agencies where maintaining the confidence of Washington citizens is paramount.

As buildings have become more complex, so have measures been developed to further protect owner and architects from costly and complicated issues due to problems during construction. Repeatedly, in the public eye, (and right or wrong), building projects reflect the competence and responsibility of management. Value engineering and constructability review are efforts to assist in avoiding that outcome.

In the experience of Roen Associates, the following are items which are important to consider when evaluating the selection process for those services:

1. The VE and CR consultants should be comprised of licensed, practicing professionals familiar with current local codes and building practices.
2. The VE-CR team members should be completely objective in their review.
3. The VE-CR team should perform the review completely independent of the design team. They are responsible only to the State's project managers for these reports.
4. The VE-CR team should make no assumptions about what may or may not be implied in the documents.
5. The VE-CR report should be straightforward enough for persons not directly involved in the construction profession to understand.
6. The VE-CR effort takes place when the A/E is at 35% design, (VE), or wrapping up design documents, (CR), and should be dovetailed in with design documents accordingly.

Value engineering, constructability review, construction management and construction cost estimating is all we do at Roen Associates and our focus is always on those endeavors.

## BACKGROUND AND QUALIFICATIONS

Roen Associates is a construction cost consulting firm with offices in Seattle and Spokane, Washington. The firm was established in 1988 by Roger Roen, a licensed architect, who previously served on the Board of Directors' at WMFL, (now Integrus), Architects, an 80-person firm, also with offices in Spokane and Seattle.

Roen Associates opened a Seattle office in 1997. We have continued to expand. We have worked on major projects in Washington, Montana, Wyoming, Idaho, Oregon, and California.

Current addresses are as follows:

The Logan Building  
500 Union Street, Suite 927  
Seattle, Washington 98104  
Voice telephone: 1-206-343-1003

121 S. Wall Street  
Spokane, Washington 99201  
Voice telephone: 1-509-838-8688

Services offered and approximate percent of our business are as follows:

Construction Cost Estimating	35%	Construction/Program Management	15%
Value Engineering	24%	Constructability Review	23%
Legal	3%		

Construction cost consulting has always been the mainstay of our market. We are the only Washington based construction cost estimating firm which has offices in both Seattle and Spokane. From our unique perspective we see construction costs in Washington from east side to west side.

Currently, Roen Associates has eight full time employees, three of whom are in Seattle and five of whom are in Spokane. Roger Roen, the owner, divides his time 50/50 between Seattle and Spokane.

Roen Associates has performed cost estimating, value engineering, and constructability reviews for numerous high-profile projects. These include a \$62m. Wellness Facility at the University of Montana; \$65m. Lab Renovation at Eastern Washington University; \$110m. Children and Family Justice Center, King County; and two major lab projects at Western Washington University.

Roen Associates has been selected for the On-Call VE-CR Services contract with the State of Washington for the last 15 years.

## PROJECT EXPERIENCE WITH STATE OF WASHINGTON PROJECTS

Year	Project Name	Location	Cost	Discipline
2021	Washington State Corrections Center Transformers & Switches Project, Phase II (Young Kim, DES)	Shelton, Washington	\$10,000,000	VE & CR
2021	Western State Hospital, Bldg. 29 Treatment & Recovery Center Addition & Remodel (Clynn Wilkinson, DES)	Lakewood, Washington	\$13,000,000	VE & CR
2021	Walla Walla Community College Science & Technology Building (Jeff Gonzales, DES, 360-489-2823)	Walla Walla, Washington	\$ 6,000,000	VE & CR CE
2021	Real World Academy Moses Lake School District (Brian Sewell, CBRE, 509-200-0588 )	Moses Lake, Washington	\$28,000,000	CR
2020	Statewide Budgeting Study Department of Corrections	Olympia, Washington	\$ 9,800,000	CE
2020	West Seattle Elementary School Seattle Public Schools (Paul Wight, 206-252-0648)	Seattle, Washington	\$28,000,000	VE
2020	Spokane Falls Community College Fine & Applied Arts Building (Gloria Miller, DES, 5009-389-5819)	Spokane, Washington	\$29,000,000	VE & CR
2020	Bethel High School Bethel School District (Cathie Carlson, 253-683-6045)	Spanaway, Washington	\$125,000,000	VE & CR
2019	Bates Technical College Medical Mile Health Sciences Center (Dennis Flynn, DEC, 360-407-7934)	Tacoma, Washington	\$55,000,000	VE
2019	Wenatchee Valley College Wells Hall (David Hickman, DES, 360-407-7950)	Wenatchee, Washington	\$22,000,000	VE & CR CE

\* CE is Cost Estimating

## REFERENCES

Cathie Carlson  
Director of Construction & Planning  
Bethel School District  
516 176<sup>th</sup> Street East  
Spanaway WA 98387  
253-683-6045  
ctcarlson@bethelsd.org  
Value Engineering, Constructability Review, Cost Estimating

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Value Engineering, Constructability Review, Cost Estimating

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Capital Planning & Development Section Facilities Management Division  
Department of Executive Services  
King County  
Seattle, Washington 98101  
206-477-9351  
Mark.Batey@kingcounty.gov  
Value Engineering, Constructability Review, Cost Estimating

Young Kim, Project Manager  
Department of Enterprise Services  
State of Washington  
Olympia, Washington  
360-725-8344  
ytkim@DOC1.WA.GOV  
Value Engineering, Constructability Review, Cost Estimating

## TEAM MEMBER QUALIFICATIONS



**Roger Roen (Roen Associates, Inc.)** is the team leader. He has a Master of Architecture-Construction Management degree, 1978, from Texas A & M University. Roger obtained his Washington State architectural license in 1984. He also has a Bachelor of Science degree majoring in Physics, and a minor in Math, from the University of Texas at El Paso in 1971. Prior to starting Roen Associates, Roger was a principal, and a board member, at WMFL Architects, (now Integrus Architecture).



**Jeff Weaver (Roen Associates, Inc.)** joined Roen Associates in 2016. Jeff has over 30 years of cost estimating and project management experience, using a wide variety of construction systems and project delivery methods. He has estimated and managed projects from small remodels to large complex structures. In Spokane, he estimated and managed projects up to \$75 million in size. Jeff has worked on healthcare facilities, K-12 Educational, Multi-family Housing, Hospitality and Tribal projects.



**Matt Wiggins (Roen Associates, Inc.)** With over 15 years of experience working in the construction industry, Matt Wiggins has a well-rounded level of experience in estimating, general contractor field management and self-performed work management. Prior to Roen Associates, he worked for two large national commercial building general contractors and a large glazing system subcontractor. Since joining Roen Associates, Matt has accurately estimated projects in every region of the Pacific Northwest, some over \$100 million in total cost. He was promoted to the director of the Seattle office in 2017.



**Skott Young (Roen Associates, Inc.)** Skott joined Roen Associates in July 2019. He has extensive experience in design review and inspection of exterior building envelope/building enclosures developed during his seven years at Morgan Design Group. He has a Master of Science - Applied Graphic Design Post-Baccalaureate Studies - Literature from the University of Houston-Clear Lake, Clear Lake, TX and a Bachelor of Science – Biochemistry from University of Houston-Clear Lake, Clear Lake, TX

## TEAM MEMBER QUALIFICATIONS, continued



**Chris Collins (Roen Associates, Inc.)** joined Roen Associates in 2018. He has over 35 years of experience as a project manager and cost estimator for a major construction firm in Spokane working on a variety of projects from institutional and financial business to multi-family apartments to tenant improvements and remodels. Chris is dependable, self-motivated and takes pride in the quality of work he provides. He holds an A.A.S. in Architectural Drafting from Spokane Community College.



**Andreas Kleidouhakis (Roen Associates, Inc.)** Andreas has lived, studied and worked in Europe, with only leisurely visits to the United States until his move to Seattle in 2015. A graduate of the built environment, he has well established experience in construction project management. He has worked in Greater Seattle for large general contractors in both private and public environments. Andreas is a new force adding to the efficiency and caliber of the estimating team in Roen Associates' Seattle office. He enjoys looking at projects from completely new perspectives and attempts to expand the boundaries of any given project's blueprint.



**Tristan Burton (Structural Forte)** is a Structural and Civil Engineer who has done consulting work for Roen Associates over 26 years ago. He founded his current firm, Structural Forte, in 2005. Tristan has been responsible for the design of numerous significant buildings since joining Structural Forte, Inc. He has also designed the structural upgrades for many existing buildings. He is professionally registered in the State of Washington 1993 Civil Engineering and 1996 Structural Engineering



**Wade Botting (W. A. Botting Consulting)**, Wade has over 31 years' experience of mechanical contracting projects. He has managed projects, mechanical design, and construction on over \$15,000,000 worth of contracts. Wade has worked with Roen Associates on both cost estimating and constructability reviews. Within the last three years, he has been working on value analysis with us. Roen Associates and Wade Botting have developed a working relationship which encompasses both cost estimating and constructability.



## TEAM MEMBER QUALIFICATIONS, continued

No  
Photo  
Available

**Tom Gerard (TJG Consulting Engineers)**, a mechanical engineer, specializes in all phases of mechanical/system analysis, selection and design for educational, commercial, institutional and industrial facilities. Tom is also in charge of the Energy Group which deals with energy savings/economic analysis of proposed and existing buildings. His experience in the energy field has included, but is not limited to, Life Cycle Cost Analysis Studies (LCCA), Navy Facility Energy Plans, Energy Efficiency Studies (EES), and Technical Assistance Studies (TAS). He is a Registered Professional Engineer with the State of Washington and is WABO Certified Non-Residential Energy Code Plans Examiner.



**Bud Reichard (AES Engineers)**, Bud is President and Founder of Seattle electrical consulting firm AES Engineers. For the last 15 years, Bud has been an integral part of our value engineering and constructability review efforts. Bud has held a Washington electrical engineering license since 1996. He has a Bachelor of Science in Electrical Engineering from Penn State University.



**Jerod Gummer (Gummer Consulting)**, has been in the electrical construction industry for over 20 years and has held numerous roles including electrician, estimator, CAD draftsman, project engineer, service manager, project manager, and project executive. He has managed millions of square feet of new and renovation construction projects. His professional focus has always been design/build or design/assist projects. Jerod has worked with Roen Associates for over 10 years. In that time, he has performed numerous estimates and constructability reviews.

## VALUE ENGINEERING SERVICES

### THE REPORT – THE RECAP AND THE WORKSHEETS

Roen Associates documents our value engineering work using the following format. Our reports consist of a recap sheet showing a list of value engineering alternatives with page number references, the projected savings, and space for the design team and owner to respond. The recap sheets are followed by worksheets which contain supporting detail for the alternatives' cost calculations.

#### The Recap

The recap sheet looks like this. This provides a quick summary of alternatives, their cost ramifications, and page numbers to find supporting detail elsewhere in the report.

**Project: SFCC - Fine & Applied Arts Building**

**VE Study**

**Recap Value Engineering Proposals**

Costs shown in parentheses are deducts, costs shown without parentheses are adds

**ROEN**  
ASSOCIATES

No.	Description	Page Nos.	Cost Impact	Accept	Reject	Comments
<b>SITE/CIVIL</b>						
C-1:	Reduce fire lane concrete		Not Used			
C-2:	Replace granite bench/edging	3-6	(60,810)			
C-3:	Eliminate/reduce berms against the building	7-10	(10,341)			
C-4 -1:	Move building to the south, 5' delete retaining wall	11-14	(32,526)			
C-4-2:	Move building to the south, 20' delete retaining wall	15-18	(32,526)			
<b>ARCHITECTURAL</b>						
A-1:	Eliminate ridge/valley feature at brick veneer panels	19-22	(95,861)			
A-2:	Change finish surface at berms to concrete	23-26	(13,382)			
A-3:	Replace stone veneer at exterior with ground face colored CMU	27-30	(103,303)			

There is space on the recap sheet, to the right of the "cost impact" column for the A/E to respond, "Accept", or "Reject", and add comments.

After the recap sheets, we provide backup for the worksheets. The backup is four sheets for each VE alternative.

## THE WORKSHEETS, CONT'D.

We document each alternative using the following format.

Sheet 1 – Verbal Description

Sheet 2 – As Designed

Sheet 3 – As Proposed

Sheet 4 – Cost Analysis

Those four sheets document our thought processes for each of the items listed on the Recap Sheet. We typically generate anywhere from 30 to 55 value engineering options in each study.

**Sheet 1 - Verbal Description.** This sheet describes the alternative for both as designed and as proposed conditions.

Project: SFCC - Fine & Applied Arts Building  
VE Study A-9: Use standard curtain wall at Lobby in lieu of current system

**ROEN**  
ASSOCIATES

Verbal Description
<p><b>As Designed</b></p> <p>Currently proposed is a special window wall system consisting of very large pieces of glass supported every four feet by 4" x 12" vertical glu lam beams. In some instances, the glass is 16' tall. All of the pieces are 4' wide. They are all butt jointed. Roen Associates assumes that the glu lams will be an appearance grade and have to meet stricter than normal specifications for straightness. We are assuming the system isn't proprietary and that there will be more than one bidder qualified to bid.</p>
<p><b>As Proposed</b></p> <p>The value engineering alternative is what we would normally see on most higher education facilities. That would be a metal framed system with smaller glass panels, something less than 16' long. The typical metal curtain wall system could accommodate steel columns which would lessen the span of the steel framing members at the roof.</p>

## THE WORKSHEETS, CONT'D.

**Sheet 2 – As Designed.** Sheet 2 depicts the "as designed" condition with pros and cons at the bottom of the sheet. In this case the A/E was proposing a glazing system which used glu lam beams for structural glazing mullions.

**As Designed**

**Advantages**

Cool
Addition of wood structure is attractive
Accentuates connection to tall trees in view out of the windows

**Disadvantages**

Cost is significantly more
No opportunity for incorporating glu lams as vertical load bearing elements (or is there??)

**NOVUM**  
Novum Structures LLC

15-0142  
15-0142  
15-0142

## Sheet 3 – As Proposed

Sheet 3 depicts the value engineering alternative as proposed by the value engineering team.

**As Proposed**

**Advantages**

Costs less
Tried and True Technology

**Disadvantages**

Not as attractive
Not as relevant

In practice, our "as designed" and "as proposed" sheets face each other in a report that is duplex printed. This allows owners and designers to see the two approaches face to face. Advantages and disadvantages likewise face each other in our reports.

## THE WORKSHEETS, CONT'D.

### Sheet 4 – Cost Analysis

This sheet documents how are cost savings are calculated. Savings analyses at this point in the design process reflect the level of detail in the design documents.

Project: SFCC - Fine & Applied Arts Building  
VE Study A-9: Use standard curtain wall at Lobby in lieu of current system

Cost Analysis				
Work Activity	Quantity	Unit	Unit Cost	Total Cost
<b>Deduct:</b>				-
CW-2 curtainwall	4296	sf	(190.00)	(816,240)
Quantity blow for Glu Lams, estimate shows 3 x 12; drawings show 4 x 12	4321	fbm	(40.00)	(172,840)
Add for glu lam appearance upgrade, +15%	0.15	%	(172,840.00)	(25,926)
				-
				-
				-
				-
				-
				-
<b>Add:</b>				-
Typical curtainwall product as specified elsewhere in the facility	4296	sf	110.00	472,560
				-
				-
				-
				-
				-
				-
				-
				-
				-
<b>TOTAL DIRECT COST</b>				(542,446)
<b>MARK UP</b>	14.90%			(80,824)
<b>TOTAL ESTIMATE COST IMPACT</b>				(623,270)

### Value Engineering

This value engineering alternative showed a great deal of savings for a window wall system that we have not seen in this area before. While attractive, the vertical glu lam beams and the unique method of anchoring them to the glazing were substantially more expensive than the conventional curtain wall/metal frame thermally broken window system.

This constitutes the format for our value engineering reports.

## **CONSTRUCTABILITY REVIEW APPROACH**

Unexpected costs for the project can occur during construction in the form of change orders, requests for information, and delays to the construction schedule. These costs occur when there are errors and inconsistencies in the documents. The constructability review is intended to prevent these costs.

Like the value engineering study, the constructability review is accomplished by a second team of design professionals who review the documents and identify occurrences which may be problematic to that effect. The review typically takes two weeks.

This effort is typically less group study and more individual review than a value engineering study. Comments include such things as missing, or incomplete details, incorrect details, or conflicts between different design disciplines. The constructability review usually takes place at about 95% complete documents. The owner should allow two weeks to do the study, and two weeks for the designers to respond to the comments. Under no circumstances should the designers be responding to the constructability comments by addenda to plans that are already issued for bids.

An effective constructability review can save an owner substantial money and headache during the actual construction of the project.

Our proposal that follows addresses these procedures in further detail and outlines our unique, highly effective approach in conducting these efforts.

## **CONSTRUCTABILITY REVIEW METHODOLOGY**

Of late, meetings between the constructability review team, the design team, and owner's personnel have been taking place via teleconferencing. Normally, those meetings are face to face.

Our constructability reviews start with a kick-off meeting between ourselves, the designers, and the owner. We ask for a half size set of the documents for each consultant on our team. We also ask for electronic copies of the documents on which we record our comments. At the end of our review, we re-convene with the owner and design team and review our findings. We try to minimize our impact on the work of the design team; but the constructability review saves them work and time by ferreting out glitches, areas of ambiguity, and errors prior to bid time.

Our final report includes our consultants contact information and their contact information; and the designers are encouraged to call the constructability reviewers with questions or comments.

## CONSTRUCTABILITY REVIEW DOCUMENTATION

Our documentation consists of two parts. We assemble our comments in a list, shown below, which references comments on each sheet of drawings. The comment includes the reviewer's name, a reference to the comment on the drawing sheet, and space for the designer to respond. We encourage the owner to obtain a copy of the designer's responses when they are finished. A sample sheet is shown below:

### Constructability Review

Project: West Valley High School  
Location: Yakima, WA



#### Review Comments

Constructability Review Team				Design Team and Owner		
Sheet No.	No.	Comment	Person	Response	Person	Date
A3.05	1	Material Key - No spec. section 092400	GB			
A4.01	1	S2.05 doesn't show the wall under the new W10x22 north of grid F on A4.01.	RCR			
A5.01	1	Mezzanine floor construction North, (to the right), of grid line F is called out as existing. It appears to be new on	RCR			
A5.01	2	How does new CMU fit under concrete arches? Is there a slip joint?	RCR			
A5.01	3	Should the new W10x22 show on wall section no. 2?	RCR			
A5.01	4	No details indicated for ceiling to wall connections.	GB			
A5.01	5	No details indicated for wall to roof connections.	GB			
A5.02	1	No details indicated for ceiling to wall connections.	GB			
A5.02	2	No details indicated for wall to roof connections.	GB			
A5.02	3	4: Detail 6.02A does not match look.	GB			
A5.02	4	5: No detail indicated for Bleacher connection to wall and/or	GB			
A5.03	1	How is roof slope achieved around skylights?	RCR			
A5.03	2	Material Key - No spec. section 092400	GB			
A5.03	3	No details indicated for ceiling to wall connections.	GB			
A5.04	1	No details indicated for ceiling to wall connections.	GB			
A5.04	2	12: 7.10 Detail does not match look.	GB			
A5.04	3	10: No details indicated for wall to roof connections.	GB			
A5.04	4	12: Soffit construction detail?	GB			
A5.04	5	12: No detail for floor to mezzanine connection.	GB			
A5.05	1	The "gap" in the floor, new or existing, doesn't seem to show on structural floor plan S2.05.	RCR			
A5.05	2	7.10 Detail does not match look.	GB			
A5.05	3	No detail for wall to roof connection.	GB			

Architectural Comments

4

10/24/2013

This is a process which typically takes place formally, or informally, in the designers' and consultants' offices. Many of these comments can be quickly addressed with a simple check mark.

The ability to perform this check electronically speeds the process and makes responses by the design team easier to check off.

There have been times when Roen Associates has been asked to perform a back check after our comments have been addressed by the design team. Roen Associates feels this is typically should not be required, but there are times when it may be necessary.

Maintaining schedule is critical for this effort. There have been times when designers have been forced to address our comments by addenda issued during the bidding period. We recommend every effort be made to avoid this potential eventuality.



Our comments appear as shown below on the documents provided by the design team on commencement of the study. When our markup is complete at the end of the two-week period, we return these documents to the design team for their responses.

**GENERAL NOTES - CEILING**

1. ALL CEILING SHALL BE 15' MAX. HANGING.
2. ALL CEILING SHALL BE 15' MAX. HANGING.
3. ALL CEILING SHALL BE 15' MAX. HANGING.
4. ALL CEILING SHALL BE 15' MAX. HANGING.
5. ALL CEILING SHALL BE 15' MAX. HANGING.
6. ALL CEILING SHALL BE 15' MAX. HANGING.
7. ALL CEILING SHALL BE 15' MAX. HANGING.
8. ALL CEILING SHALL BE 15' MAX. HANGING.
9. ALL CEILING SHALL BE 15' MAX. HANGING.
10. ALL CEILING SHALL BE 15' MAX. HANGING.

**CEILING TYPE LEGEND**

- 1. 15' MAX. HANGING
- 2. 15' MAX. HANGING
- 3. 15' MAX. HANGING
- 4. 15' MAX. HANGING
- 5. 15' MAX. HANGING
- 6. 15' MAX. HANGING
- 7. 15' MAX. HANGING
- 8. 15' MAX. HANGING
- 9. 15' MAX. HANGING
- 10. 15' MAX. HANGING

**CODED NOTES - RCP**

1. 15' MAX. HANGING
2. 15' MAX. HANGING
3. 15' MAX. HANGING
4. 15' MAX. HANGING
5. 15' MAX. HANGING
6. 15' MAX. HANGING
7. 15' MAX. HANGING
8. 15' MAX. HANGING
9. 15' MAX. HANGING
10. 15' MAX. HANGING

**LEVEL 01 - REFLECTED CEILING PLAN**

**SCIENCE & TECH ADDITION**

**WWCC**

**PERMIT SET**

**LEVEL 1 - REFLECTED CEILING PLAN**

**A-150**

This completes the 4-week process referenced in the narrative above. With proper scheduling and attention to detail, this can save the owner money and speed the construction process.

## **INSURANCE**

Roen Associates currently carries the following insurance liabilities:

Commercial General Liability	\$2,000,000 per occurrence
Automobile Liability	\$2,000,000 per occurrence
Employers Liability	\$1,000,000 per occurrence
Professional Liability	\$1,000,000 per occurrence - \$2,000,000 aggregate

We can add additional insureds within 24 hours and provide certificates of insurance at that time.



***Roen Associates, Inc.***

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